



We've got a program to invent a new name for ecology, so we can keep it alive after it's been talked to death. We're thinking of calling it politics.

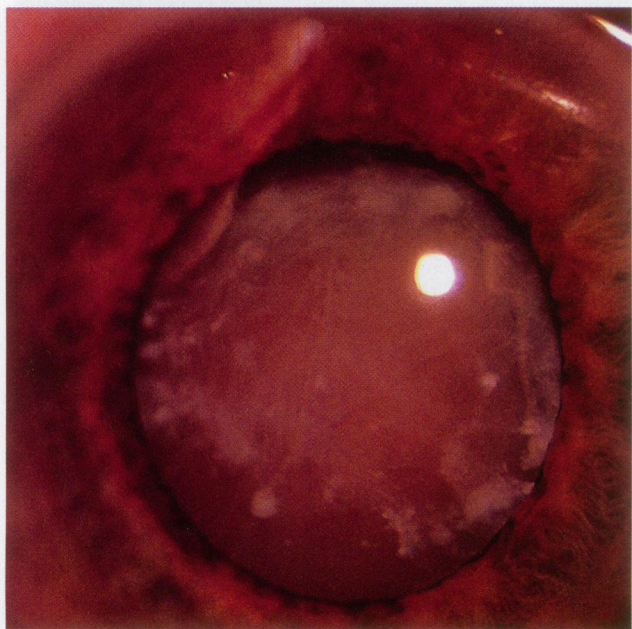
Harvey Wheeler

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Cataract Development: It's Cumulative

Cumulative exposure to UV-B radiation in sunlight increases the risk of cataracts, even among a population with relatively low exposure throughout their lifetimes. This is the finding of a recent study by researchers at The Johns Hopkins University in Baltimore, Maryland, that was published in the 26 August 1998 issue of the *Journal of the American Medical Association*. Earlier studies had linked the risk of cataract development to high levels of sunlight exposure.

The Salisbury Eye Evaluation (SEE) project was a two-year study funded by the National Institute on Aging. The SEE project is the first to demonstrate that high levels of sunlight exposure are not necessary for cataract development, but that cumulative exposure over many years is a risk factor. The study also indicates a difference in risk for cataracts among whites and blacks.



Lester V. Bergman/Corbis

Don't stare into the sun. A new study shows that cumulative exposure to UV-B radiation in sunlight increases the risk of cataracts.

The study was conducted in Salisbury, Maryland. Salisbury was selected as the study site for a number of reasons. The moderate size of the town gave the researchers a manageable study cohort. In addition, the Johns Hopkins staff had already established a working relationship with Salisbury's ophthalmologists and optometrists, and the single local hospital

allowed ready access to medical records if needed.

The researchers obtained a list of 3,821 individuals in Salisbury who were aged 65 and older. This list included 100% of Salisbury's black residents in that age group, 56% of the whites aged 65–74 years, and 62% of the whites aged 75 and older. Females made up 58% of the list. These potential subjects were first visited in their homes and asked to take a screening questionnaire. The questionnaire asked the participants about their sunlight exposure since the age of 30, both at work and during leisure activities, the geographic locations of their work and leisure activities, and whether they used glasses or hats while outside. They also were asked to assess their current level of vision on a scale of 1 (poor) to 10 (excellent).

Those participants who met study criteria were then asked to report to the SEE clinic to undergo dilation of the pupil and

photographing of the lens. The researchers used an algorithm that considered the amount of sunlight exposure per day at a given time of day, the month of exposure, the fraction of time spent outdoors, and the use of hats and eyeglasses to calculate each subject's annual UV-B exposure. Exposure units were in Maryland sun-years (MSY), the equivalent of 75.9 joules of radiant energy per square centimeter of tissue. Of the 2,520 individuals who reported to the clinic, no differences were found in their average annual sunlight exposure, though women as a group tended to have less exposure (median 0.007 MSY)

than men (median 0.019 MSY).

Blacks exhibited a significantly greater number of cortical cataracts than whites, even though sunlight exposure did not differ between the two groups. "There is a racial factor of some sort demonstrated here," says Sheila K. West, a professor at the Wilmer Eye Institute at Johns Hopkins and coauthor of the study. "We thought it

might be associated with the greater prevalence of hypertension or diabetes among the black population, but after controlling for those factors the difference remained." She also notes that eye color, education, smoking, and alcohol use were not found to account for the difference. "Nevertheless," she says, "ours is the first study to document the relationship between ocular exposure to UV-B and risk of cortical opacity in African Americans."

Overall, for the older population of Salisbury, the risk for cortical cataracts resulting from cumulative exposure to UV-B was found to be 13%. This level of risk may well be unique to Salisbury, says West. One might expect the prevalence of such cataracts to be higher among a population living in areas of more intense sunlight occurring over longer periods of time. However, West notes, "People living in areas of intense sunlight may not stay out in the sun for long periods of time and are more accustomed to wearing sunglasses when they are out."

Robert Sperduto, chief of the Epidemiology Branch of the National Eye Institute, agrees. "It is likely that individual levels of exposure differ even in areas with greater amounts of sunlight, though earlier studies indicate a higher prevalence of cataracts in areas with more sunlight," he says.

No association was found between UV-B exposure and other types of cataracts, such as nuclear or posterior subcapsular opacities. Extrapolation of these test results is moot, however, inasmuch as no similar studies have been carried out in other areas.

Fortunately, cortical lens opacities are easily preventable, the researchers say. Simply wearing plastic lenses, tinted or not, or a wide-brimmed hat can significantly reduce the incidence of these cataracts. Some manufacturers are now treating contact lenses to block UV-B radiation.

The study is now in its second phase. The Johns Hopkins team plans to assess whether continued exposure over two years will cause existing cataracts to grow, and whether the use of preventive measures will arrest growth.

New Rules for Feedlots

For livestock and poultry producers across the United States, the manure is hitting the fan. A September 1998 report entitled